

MR2707-3

Serial Number: 09/990,273

Reply to Office Action dated 10 January 2005

AMENDMENTS TO THE DRAWINGS

The attached two Drawing sheets include a change to Figs. 3 and 5, and replace the original Drawings having Figs. 3 and 5 thereon. In each of Figs. 3 and 5, missing coupling lines were mislabeling has been corrected.

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REMARKS/ARGUMENTS

This case has been carefully reviewed and analyzed in view of the Official Action dated 10 January 2005. Responsive to the rejections made in the Official Action, Claims 1, 7 and 12 have been amended to clarify the combination of elements which form the invention of the subject Patent Application. Additionally, Claims 2-6 and 8-11 have been canceled by this Amendment.

In the Official Action, the Examiner objected to the Specification due to several informalities therein. Accordingly, the Specification has been amended to correct those informalities kindly noted by the Examiner and several others that were found therein.

In the Official Action, the Examiner rejected Claims 1-2, 4 and 7-8 under 35 U.S.C. § 102(b), as being anticipated by Carmen, et al., U.S. Patent 5,155,614.

Before discussing the prior art relied upon by the Examiner, it is believed beneficial to first briefly review the structure of the invention of the subject Patent Application, as now claimed. The invention of the subject Patent Application is directed to an ultrasonic and infrared transmitter with tunable carrier frequency which includes a frequency divider for receiving an oscillation frequency and dividing the oscillation frequency to produce a carrier signal at an output thereof. The device further includes a multiplexer having a first input for receiving a data signal and a second input coupled to the output of the frequency divider for receiving the carrier signal. The multiplexer has an output and a control input for

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receiving a select control signal to select between the data signal being output to the output of the multiplexer and the carrier signal modulated by the data signal being output to the output of the multiplexer. The Device also includes an output buffer connected to the output of the multiplexer for outputting a respective signal input thereto. The ultrasonic and infrared transmitter with tunable carrier frequency includes an infrared light emitting diode or an ultrasonic transducer connected to the output buffer for transmitting an infrared or ultrasonic modulated carrier signal. Further, as defined in Claim 7, the structure is further defined as having a pair of multiplexers each having a pair of inputs for respectively receiving the data and carrier signals (one multiplexer receiving an inverse of the carrier signal) and control inputs for receiving respective select control signals, to select between the data signal input to the multiplexer being output therefrom, or the respective carrier signal modulated by the corresponding data signal. Coupled to the respective outputs of the pair of multiplexers are a pair of output buffers, each having output to which a transmitting element is coupled therebetween, for driving the transmitting element in a push-pull arrangement.

In contradistinction, the Carmen, et al. reference is directed to a low-power demodulating receiver with amplifier stages sharing the same bias current. As shown in Fig. 5, a frequency divider 250 produces a carrier frequency which is supplied to the LED driver 252 by line 260. As indicated by the Drawing of Fig. 5 and the SGS-Thomson data sheet, the carrier frequency signal is coupled to the

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inputs of a plurality of buffer amplifiers of the LED driver. An enable signal provided on line 264 is also coupled to one enable input of the LED driver and the data signal provided on line 263 is coupled to the other enable input of the LED driver. Therefore, the LED driver serves as both an output amplifier and modulator to provide a modulated carrier signal to drive the LED transmitter 226. Nowhere does the reference disclose or suggest a multiplexer having a first input for receiving a data signal and a second input coupled to the output of the frequency divider for receiving the carrier signal and a control input for receiving a select control signal to select between the data signal being output to the output of the multiplexer and the carrier signal modulated by the data signal being output to the output of the multiplexer. No matter how one would interpret the circuit of Carmen, et al., it does not provide any means for selecting between outputting the "raw" (base band) data signal or the modulated carrier signal, as provided by the invention of the subject Patent Application, as now claimed.

As the reference fails to disclose each and every one of the elements of the invention of the subject Patent Application, as now claimed, it cannot anticipate that invention. Further, as the reference fails to suggest such a combination of elements, it cannot make obvious that invention either.

In the Official Action, the Examiner rejected Claims 1-12 under the judicially created doctrine of obviousness-double patenting, as being unpatentable

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over Claims 1-2 and 4 of U.S. Patent 6,617,937, in view of the admitted prior art and the IEEE Standard Dictionary of Electrical and Electronics Terms.

It is respectfully submitted that Claims 1, 7 and 12, as now amended, are now patentably distinct with respect to the claims of Applicants' prior Patent when considered in combination with the admitted prior art and the IEEE document. Thus, it is not believed that an obviousness-type double patenting situation now exists in light of the amendment made to the claims.

For all of the forgoing reasons, it is now believed that the subject Patent Application has been placed in condition for allowance, and such action is respectfully requested.

Respectfully submitted,
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